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Committee on the Peaceful Uses of Outer Space
Scientific and Technical Subcommittee
Fifty-second session
Vienna, 2-13 February 2015

Draft report

I. Introduction

1. The Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space held its fifty-second session at the United Nations Office at Vienna from 2 to 13 February 2015, under the chairmanship of Előd Both (Hungary).

2. The Subcommittee held [...] meetings.

A. Attendance

3. Representatives of the following [...] States members of the Committee attended the session: Algeria, Argentina, Armenia, Austria, Belarus, Belgium, Bolivia (Plurinational State of), Brazil, Bulgaria, Burkina Faso, Canada, Chile, China, Colombia, Costa Rica, Cuba, Czech Republic, Ecuador, Egypt, France, Germany, Greece, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Italy, Japan, Jordan, Kenya, Lebanon, Luxembourg, Malaysia, Mexico, Netherlands, Nicaragua, Nigeria, Pakistan, Peru, Philippines, Poland, Portugal, Republic of Korea, Romania, Russian Federation, Saudi Arabia, Slovakia, South Africa, Spain, Sri Lanka, Sweden, Switzerland, Tunisia, Turkey, Ukraine, United Kingdom of Great Britain and Northern Ireland, United States of America, Venezuela (Bolivarian Republic of) and Viet Nam.

4. At its 815th meeting, on 2 February, the Subcommittee decided to invite, at their request, observers for the Dominican Republic, El Salvador, Israel, Oman, Panama and the United Arab Emirates to attend the session and to address it, as appropriate, on the understanding that it would be without prejudice to further requests of that nature and that doing so would not involve any decision of the Committee concerning status.

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5. At that same meeting, the Subcommittee decided to invite, at its request, the observer for the European Union to attend the session and to address it, as appropriate, on the understanding that it would be without prejudice to further requests of that nature and that doing so would not involve any decision of the Committee concerning status.

6. At its 817th meeting, on 3 February, the Subcommittee decided to invite, at its request, the observer for the Sovereign Military Order of Malta to attend the session and to address it, as appropriate, on the understanding that it would be without prejudice to further requests of that nature and that doing so would not involve any decision of the Committee concerning status.

7. Observers for the Office for Disarmament Affairs of the Secretariat, the International Civil Aviation Organization (ICAO), the International Telecommunication Union (ITU) and the World Meteorological Organization (WMO) attended the session.

8. The session was attended by observers for the following intergovernmental organizations with permanent observer status with the Committee: Asia-Pacific Space Cooperation Organization (APSCO), European Organisation for Astronomical Research in the Southern Hemisphere (ESO), European Space Agency (ESA), European Telecommunications Satellite Organization (EUTELSAT-IGO), Inter-Islamic Network on Space Sciences and Technology (ISNET) and International Mobile Satellite Organization (IMSO).

9. The session was also attended by observers for the following non-governmental organizations having permanent observer status with the Committee: African Association of Remote Sensing of the Environment (AARSE), Committee on Space Research (COSPAR), EURISY, European Space Policy Institute (ESPI), International Academy of Astronautics (IAA), International Association for the Advancement of Space Safety (IAASS), International Astronautical Federation (IAF), International Astronomical Union (IAU), International Society for Photogrammetry and Remote Sensing (ISPRS), International Space University (ISU), Prince Sultan bin Abdulaziz International Prize for Water (PSIPW), Scientific Committee on Solar-Terrestrial Physics (SCOSTEP), Secure World Foundation (SWF), Space Generation Advisory Council (SGAC) and World Space Week Association (WSWA).

10. At its 815th meeting, on 2 February, the Subcommittee decided to invite, at its request, the observer for the European Science Foundation to attend the session and to address it, as appropriate, on the understanding that it would be without prejudice to further requests of that nature and that doing so would not involve any decision of the Committee concerning status.

11. The Subcommittee took note of the applications of El Salvador and Qatar for membership in the Committee (A/AC.105/C.1/2015/CRP.14 and A/AC.105/C.1/2015/CRP.4, respectively).

12. A list of the representatives of States, United Nations entities and other international organizations attending the session is contained in A/AC.105/C.1/2015/INF [...].

B. Adoption of the agenda

13. At its 815th meeting, on 2 February, the Subcommittee adopted the following agenda:

1. Adoption of the agenda.
2. Statement by the Chair.
3. General exchange of views and introduction of reports submitted on national activities.
4. United Nations Programme on Space Applications.
5. Space technology for socioeconomic development in the context of the United Nations Conference on Sustainable Development and the post-2015 development agenda.
6. Matters relating to remote sensing of the Earth by satellite, including applications for developing countries and monitoring of the Earth's environment.
7. Space debris.
8. Space-system-based disaster management support.
9. Recent developments in global navigation satellite systems.
10. Space weather.
11. Near-Earth objects.
12. Use of nuclear power sources in outer space.
13. Long-term sustainability of outer space activities.
14. Examination of the physical nature and technical attributes of the geostationary orbit and its utilization and applications, including in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests of developing countries, without prejudice to the role of the International Telecommunication Union.
15. Draft provisional agenda for the fifty-third session of the Scientific and Technical Subcommittee.
16. Report to the Committee on the Peaceful Uses of Outer Space.

C. General statements

14. Statements were made by representatives of the following member States during the general exchange of views: Algeria, Argentina, Austria, Brazil, Burkina Faso, Canada, Chile, China, Cuba, Czech Republic, France, Germany, Hungary, Italy, India, Indonesia, Iran (Islamic Republic of), Japan, Luxembourg, Malaysia, Mexico, Nigeria, Pakistan, Poland, Republic of Korea, Romania, Russian Federation, South Africa, Switzerland, Ukraine, United States, Venezuela (Bolivarian Republic of) and Viet Nam. A statement was made by the observer for

Panama on behalf of the Group of Latin American and Caribbean States. A statement was also made by the observer for El Salvador. General statements were also made by the observers for APSCO, ESA, IAA, IAF, ISNET, SGAC and SWF.

15. The Subcommittee heard the following scientific and technical presentations:

(a) "Recent Indian space missions: update as of February 2015" and "India's Mars Orbiter Mission in Mars orbit", by the representatives of India;

(b) "The new progress of the lunar project in China", by the representative of China;

(c) "Biological investigations onboard the Bion-M No. 1 and Foton-M No. 4 spacecraft" and "Search for dark matter particles in space: international PAMELA and GAMMA-400 experiments", by the representatives of the Russian Federation;

(d) "Asia-Pacific Regional Space Agency Forum in 2014 (APRSAF-21)", by the representative of Japan;

(e) "Visual infrared spectrometers: the Italian search for the origin of the solar system", by the representative of Italy;

(f) "Rosetta-Rosina: a glimpse of a very ancient world", by the representative of Switzerland;

(g) "Possible uses of nanosatellites for various mission applications", by the representative of Hungary;

(h) "ESA human spaceflight today: the ISS", by the observer for ESA;

(i) "World Space Week 2015", by the observer for WSWA;

(j) "ICAO/OOSA Aerospace Symposium", by the observer for ICAO;

(k) "The Space Generation Congress 2014: perspectives from university students and young professionals in the space sector", by the observer for SGAC.

16. The Subcommittee welcomed Luxembourg as a new member of the Committee on the Peaceful Uses of Outer Space.

17. At the 815th meeting, the Chair of the Subcommittee made a statement outlining the work of the Subcommittee at its current session. He brought to the attention of the Subcommittee several provisions of General Assembly resolution 69/85 pertaining to the current work of the Subcommittee. The Chair in his statement emphasized that in building upon the contribution of the Committee on the Peaceful Uses of Outer Space to the United Nations Conference on Sustainable Development (A/AC.105/993), the establishment and strengthening of sustainable and standards-driven spatial data infrastructures merited recognition as a means of implementing development goals and objectives within the context of the post-2015 development agenda process.

18. Also at the 815th meeting, the Director of the Office for Outer Space Affairs of the Secretariat made a statement in which she reviewed the work carried out by the Office during the previous year and presented a detailed description of planned activities for the coming year, including outreach activities and cooperation and coordination with United Nations entities and international intergovernmental and non-governmental organizations. She also highlighted the current financial status of

the Office and stressed the importance of the availability of adequate financial and human resources for the successful implementation of the programme of work of the Office. In that regard, it was essential that the Office be provided with the level of resources necessary for the fulfilment of the full scope of its mandate. She explained that, as the global community was shaping new sustainable development goals and formulating the global development agenda in the post-2015 context, it was important to mobilize support and commitment at the global level to increase the role of space-based technology and information as an enabler for reaching the goals and objectives of the post-2015 development agenda.

19. The Subcommittee noted the important anniversaries in 2015, such as the fiftieth anniversary of the first spacewalk performed by a human, cosmonaut Alexey A. Leonov of the Russian Federation; the fortieth anniversary of the Apollo-Soyuz Test Project; the fifteenth anniversary of continuous human habitation of the International Space Station; and the twenty-fifth year in space of the Hubble Space Telescope.

20. The view was expressed that the continuous enlargement of the Committee in the past few years demonstrated the confidence that the international community attached to the multilateral system.

21. Some delegations reaffirmed the commitment of their countries to the peaceful use and exploration of outer space and emphasized the following principles: equal and non-discriminatory access to outer space and equal conditions for all States, irrespective of their level of scientific, technical and economic development; non-appropriation of outer space, including the Moon and other celestial bodies, by claim of sovereignty, use, occupation or any other means; the non-militarization of outer space, the non-placement of weapons in outer space, and its strict use for the improvement of living conditions and peace on the planet; and regional cooperation to promote the development of space activities.

22. Some delegations expressed the view that, given the impact of space activities on human life and the environment, there should be greater coordination and interaction between the Scientific and Technical Subcommittee and the Legal Subcommittee in order to promote the establishment of binding international norms addressing issues such as space debris and the use of nuclear power sources in outer space, which were critical issues in the use and exploration of outer space.

23. Some delegations expressed the view that developing countries should benefit from space technologies, in particular to support their social and economic development; that it was necessary to promote cooperation to facilitate data exchange and the transfer of technology among States; and that training of scientists in developing countries was crucial for the free flow of scientific information and data exchange, increased capacity-building and the sharing of knowledge.

24. Some delegations expressed the view that any initiative related to the use of outer space should be addressed by the Committee and that the discussion within multilateral organizations with specific mandates was an essential condition for the development of binding legal instruments that contributed to the improvement of space law and that would allow the equal participation of all States. Those delegations were of the view that in relation to outer space, issues of disarmament, international cooperation and space debris could not be subject to non-binding agreements negotiated outside the framework of the United Nations.

25. The view was expressed that the Subcommittee provided a unique platform at the global level for international cooperation in space research and long-term space utilization and that its role for the next half century would be significant. In that regard, the delegation expressing that view was also of the view that one of the Subcommittee's areas of focus should be the contribution of space-based technology to sustainable development.

26. The Subcommittee expressed its gratitude to the organizers of the following events held on the margins of the current session of the Subcommittee:

(a) Presentation and display at the permanent space exhibit of the Office for Outer Space Affairs of the Argentine ARSAT-1 satellite and Tronador rocket models, by Argentina;

(b) The "Space for global health" event, by ESPI and the Office for Outer Space Affairs;

(c) Presentation of a model of the Mars Orbiter Mission, donated for the permanent space exhibit of the Office for Outer Space Affairs, by India;

(d) Press conference on the joint United States-Russian one-year mission to the International Space Station, by Julie Robinson, Chief Scientist for the International Space Station of the National Aeronautics and Space Administration (NASA) at the Johnson Space Center of the United States, and Simonetta Di Pippo, Director of the Office for Outer Space Affairs;

(e) Presentation of the ESA Rosetta mission, entitled "Rosetta's journey: unlocking the origins of life", by ESA;

(f) Seminar on space and sustainable development, entitled "Role of space-based applications in disaster risk reduction in the context of the Third World Conference on Disaster Risk Reduction", by Japan;

(g) Interactive exhibition on the European satellite navigation systems (European Geostationary Navigation Overlay Service (EGNOS) and Galileo), by the European Commission and the European GNSS Agency.

D. National reports

27. The Subcommittee took note with appreciation of the reports submitted by Member States (A/AC.105/1077 and Add.1 and 2, A/AC.105/C.1/2015/CRP.17 and A/AC.105/C.1/2015/CRP.18) for its consideration under agenda item 3, "General exchange of views and introduction of reports submitted on national activities". The Subcommittee recommended that the Secretariat continue to invite Member States to submit annual reports on their space activities.

E. Symposium

28. On 2 February, COSPAR organized a symposium on the theme "Measuring the universe: looking back in time with modern astronomy", which was moderated by Karl-Heinz Glassmeier of COSPAR.

29. The presentations given at the symposium included the following: "Measuring the Universe" by Karl-Heinz Glassmeier of the COSPAR Bureau and the Technical University of Braunschweig, Germany; "The Gaia mission" by Timo Prusti of the ESA Scientific Support Office, European Space Research and Technology Centre, Noordwijk, the Netherlands; "Gaia, the galaxy in one petabyte" by Carme Jordi of the Institute of Cosmos Sciences, University of Barcelona, Spain; "Space science satellites in Brazil 2014" by Francisco Jablonski, the National Institute for Space Research (INPE) of the Ministry of Science, Technology and Innovation, São José dos Campos, Brazil; "GalileoMobile: bringing astronomy to rural areas" by Maria Dasi Espuig and Mayte Vasquez, of the GalileoMobile project, Imperial College London, United Kingdom and the German Aerospace Centre Oberpfaffenhofen, Munich, Germany; and "Gaia and the epistemology of astrophysics" by Sibylle Anderl, Université Joseph Fourier, Grenoble, France.

F. Adoption of the report of the Scientific and Technical Subcommittee

30. After considering the items before it, the Subcommittee, at its [...] meeting, on 13 February 2015, adopted its report to the Committee on the Peaceful Uses of Outer Space, containing its views and recommendations, as set out in the paragraphs below.

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Committee on the Peaceful Uses of Outer Space
Scientific and Technical Subcommittee
Fifty-second session
Vienna, 2-13 February 2015

Draft report

[...]. Space weather

1. In accordance with General Assembly resolution 69/85, the Subcommittee considered agenda item 10, "Space weather".

2. The representatives of Brazil, Canada, China, Egypt, Germany, Italy, Japan, Mexico, Pakistan, the Republic of Korea, Saudi Arabia and the United States made statements under agenda item 10. During the general exchange of views, statements relating to the item were made by representatives of other member States.

3. The Subcommittee heard the following scientific and technical presentations:

(a) "Space weather monitoring in Russia: current status and prospects for further development", by the representative of the Russian Federation;

(b) "Recent activities of NICT space weather research and operation", by the representative of Japan;

(c) "Space weather services in China", by the representative of China;

(d) "Variability of the Sun and its Terrestrial Impact (VarSITI) — SCOSTEP's New Scientific Programme" and "SCOSTEP capacity-building activities that enhance space weather understanding", by the observers for the Scientific Committee on Solar-Terrestrial Physics (SCOSTEP).

4. The Subcommittee noted that space weather was of concern to all nations and that joint international efforts were required in monitoring, research, the improvement of modelling capabilities for forecasting and developing and delivering real-time services for space weather, all of which were indispensable for predicting and mitigating the negative effects of space weather on space-based and ground-based technological infrastructure and human lives.

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5. The Subcommittee took note of the progress made to advance space weather capabilities at the national level, such as developing national space weather programmes and the inclusion of space weather in the national preparedness plans; at the regional level, such as within the space situational awareness programme of ESA and the Asia-Oceania Space Weather Alliance (AOSWA); and at the international level, including the Committee on Space Research (COSPAR)/International Living With a Star (ILWS) space weather road map, the efforts of WMO to expand its role in space weather information and services and the plans of ICAO to form an export group with a view to developing provisions for space weather information for international air navigation. In this regard, the Subcommittee encouraged States members of the Committee and national and international organizations to further their cooperation towards achieving a global capability to monitor space weather events from space and the ground, share data to better forecast and mitigate the impacts of space weather on Earth and the space environment.

6. The Subcommittee expressed appreciation for the United Nations Programme on Space Applications, its Basic Space Science Initiative, under which space weather activities are conducted, and the International Space Weather Initiative, which contributed to observation and the development of space weather activities through the worldwide deployment of instrument arrays and the sharing of the observed data among research efforts worldwide. In that regard, the Subcommittee also noted the forthcoming United Nations/Japan Workshop on Space Weather, to be held in Fukuoka, Japan from 2 to 6 March 2015.

7. The Subcommittee welcomed with appreciation the workshop entitled "Space weather services to build global resilience", organized by the United States on the margins of the Subcommittee's fifty-second session, which provided an overview of some of the broad and diverse space weather activities and services currently being undertaken in member States and related national and international organizations, and addressed some of the key issues of maintaining the long-term sustainability of outer space activities.

8. The Subcommittee noted with satisfaction that on the margins of its fifty-second session, the Expert Group on Space Weather, whose establishment was endorsed by the Committee on the Peaceful Uses of Outer Space at its fifty-seventh session, in 2014, had met under the leadership of Canada, to define its programme of work, drawing on the best practices of the work of expert group C on space weather of the Working Group on the Long-term Sustainability of Outer Space Activities.

9. The Expert Group on Space Weather submitted its proposed mandate, workplan and the report on its first meeting to the Subcommittee at its fifty-second session (A/AC.105/C.1/2015/CRP.27).

10. In its report on the first meeting, presented by the rapporteur of the Expert Group on Space Weather, the Group reiterated the importance of continuing and expanding space weather monitoring and of developing more advanced space weather models and forecasts, and expressed a desire for increased communication, coordination and capacity-building to meet the needs of the global space weather endeavour. In that regard, discussions at the first meeting of the Expert Group included proposals that the Group could: (a) review the content, structure and

organization of ongoing efforts in the field of space weather; (b) identify where additional coordination might be required or be appropriate and/or identify opportunities and areas for additional contributions by member States, international intergovernmental organizations and non-governmental organizations; (c) propose steps to enhance space weather coordination with specialized bodies, including United Nations agencies (such as WMO and ICAO, among others), and facilitate collaboration with other space weather initiatives; (d) promote the importance and scope of the impacts of space weather on technology infrastructure, and (e) encourage the completion of studies on the impacts of space weather and the socioeconomic effects in Member States.

11. In view of the increased importance of communication between space weather stakeholder entities, the Expert Group also discussed the value of potential workshops and sharing of information between member States in relation to space weather, possibly including a dedicated web-based resource. Significant importance was also attached to the completion of space weather impact studies, and it was notated that the work completed by, for example, the United Kingdom had demonstrated the value of highlighting the important impacts of space weather and taking steps to mitigate their damaging effects.

12. The Expert Group was also informed that WMO had developed a four-year plan for space weather coordination activities aiming to enable, improve and deliver operational space weather services, in particular in response to ICAO requirements for space weather services for air navigation. The Group encouraged that initiative, which was expected to make an important contribution to the objectives of the Expert Group. Consistent with the conclusions of the expert group C of the Working Group on Long-term Sustainability of Outer Space Activities, the first meeting of the Expert Group on Space Weather had also highlighted the importance of space weather in relation to space debris and for the accurate prediction of the re-entry trajectories of objects from their space orbits.

13. The Subcommittee noted that in the face of ever-growing understanding of the potential severity, likelihood and impacts of adverse space weather, the Expert Group on Space Weather played an important role in fostering more synergy and in promoting the convergence of common interest among States members of the Committee and related national and international organizations in space weather efforts.

14. At its 822nd meeting on 5 February 2015, the Subcommittee endorsed the mandate and workplan of the Expert Group on Space Weather, which read as follows:

> 1. The mandate of the Expert Group on Space Weather is to promote awareness, provide guidance and enable communication and cooperation in space weather-related activities among States members of the Committee and related national and international organizations.
>
> 2. Under its workplan, the Space Weather Expert Group will:
>
> (a) Examine the report and conclusions of the expert group C on space weather of the Working Group on the Long-term Sustainability of Outer Space Activities, as contained in document A/AC.105/C.1/2014/CRP.15, and other information related to space weather, including the recent report from the

COSPAR-ILWS road map team entitled "Understanding space weather to shield society". The Group will examine the guidelines, recommendations and best practices to identify mechanisms to promote their implementation, including an assessment of prioritization; (Year 1)

(b) Complete an inventory of relevant United Nations organizations, including the World Meteorological Organization (WMO), the International Civil Aviation Authority (ICAO) and others, and those within States members of the Committee and national and international organizations. Identify and assess their role in the global space weather effort, promote coordination and communication between them, and ensure that the efforts of the Scientific and Technical Subcommittee are complementary; (Years 1-2)

(c) Recognizing the impacts of space weather, promote increased and expanded involvement by member States in providing space weather monitoring, from the ground and in space, and in developing, advancing and sharing and delivering space weather services; (Years 2-4)

(d) The group will report annually to the Subcommittee on its progress, important issues which have been identified, and where specific action is recommended. The group will also make a recommendation for its continuing and future workplan.

[...]. Near-Earth objects

15. In accordance with General Assembly resolution 69/85, the Scientific and Technical Subcommittee considered agenda item 11, "Near-Earth objects".

16. The representatives of Egypt, Germany, Italy, Japan, Pakistan, the Republic of Korea, the Russian Federation and the United States, as well as the representative of Chile, on behalf of the Group of Latin American and Caribbean States, made statements under agenda item 11. During the general exchange of views, statements relating to the item were made by representatives of other member States and by the observers for ESA, SGAC and SWF.

17. The Subcommittee heard the following scientific and technical presentations:

(a) "Near-Earth objects 2014", by the representative of the United States;

(b) "Current activities in Russia aimed at addressing near-Earth objects" and "Prospective 'Citadel' international planetary defence system", by the representatives of the Russian Federation;

(c) "Status and activities of newly established groups on near-Earth objects: the International Asteroid Warning Network (IAWN) and the Space Mission Planning Advisory Group (SMPAG)", by the representative of the United States and the observer for ESA;

(d) "NEO event: fireball over Romania", by the representative of Romania;

(e) "The recent status of Hayabusa-2 mission", by the representative of Japan;

(f) "MIRIS: a compact infrared space telescope", by the representative of the Republic of Korea;

(g) "Philae: first landing on a comet", by the representative of Germany.

18. The Subcommittee noted that effective responses for the mitigation of hazard threats from NEOs were best addressed through international cooperation and the coordination of related research and knowledge of best practices. The Subcommittee noted, in particular, international cooperation in the construction of telescopes for observation and the characterization of NEOs, the development of unmanned spacecraft to study NEOs, the advancement in technologies for collection of data on NEOs and the development of NEO observation spacecraft.

19. The Subcommittee also noted the importance of information-sharing in discovering, monitoring and physically characterizing potentially hazardous NEOs to ensure that all nations, in particular developing countries with limited capacity in predicting and mitigating an NEO impact, were aware of potential threats. The Subcommittee also recalled the importance of capacity-building in effective emergency response and disaster management in the event of an NEO impact.

20. The Subcommittee noted that in its resolution 68/75, the General Assembly had welcomed with satisfaction the recommendations for an international response to the NEO impact threat as contained in document A/AC.105/1038, annex III, paragraphs 11-14.

21. The Subcommittee noted that in its resolution 69/85, the General Assembly had recalled the recommendations for an international response to the near-Earth object impact threat, endorsed by the Scientific and Technical Subcommittee at its fiftieth session and by the Committee at its fifty-sixth session, and had noted with satisfaction that progress on establishing an international asteroid warning network and a space mission planning advisory group to implement the recommendations for an international response to the near-Earth object impact threat would be reported to the Subcommittee at its fifty-second session.

22. The Subcommittee recalled its earlier agreement that the work of the International Asteroid Warning Network (IAWN) and of the Space Mission Planning Advisory Group (SMPAG) should be facilitated by the United Nations and noted that the Action Team on Near-Earth Objects, established by the Committee on the Peaceful Uses of Outer Space in 2001, should assist in the establishment of IAWN and SMPAG and should inform the Subcommittee of the progress in their establishment, and that, once established, IAWN and SMPAG should report on an annual basis on their work.

23. The Subcommittee recalled that the core membership of the ad hoc steering committee of IAWN had been established (A/AC.105/1065, para. 171) at its first meeting, held under the auspices of the Action Team and hosted by the Minor Planet Center in Cambridge, Massachusetts, United States, on 13 and 14 January 2014. At that meeting, members of the ad hoc steering committee recognized that there was a need to invite other relevant organizations to participate in and contribute to IAWN.

24. The Subcommittee noted that the Action Team had met on 11 June 2014, on the margins of the fifty-seventh session of the Committee, to plan future work on the establishment of IAWN and to make preparations for the second meeting of

SMPAG, which was held on 12 and 13 June 2014. The Subcommittee further noted that at the second meeting of SMPAG, among other things, the following had been achieved:

(a) The meeting had finalized the draft terms of reference for SMPAG and agreed on a version considered final;

(b) ESA had been formally and unanimously elected as Chair of SMPAG for the next two years;

(c) The need for transparency and open communication had been emphasized. Consequently, it was decided to accept observers with expertise in fields relevant to the topic of planetary defence at the meetings of SMPAG;

(d) A draft task list of activities had been identified, from which a workplan document would be produced. It had been agreed to assign task leaders to coordinate the task activities and the production of a report. Some members of SMPAG had already volunteered to be task leaders;

(e) It had been agreed that the next SMPAG steering committee meeting would take place on the margins of the fifty-second session of the Scientific and Technical Subcommittee and that the next full meeting of SMPAG would take place in Frascati, Italy, on 9 and 10 April 2015, just before the 2015 Planetary Defense Conference.

25. The Subcommittee noted that as of its fifty-second session, SMPAG had 14 official members, that one space agency had officially requested to join SMPAG and that two other space agencies had indicated their intention to become members. The Subcommittee further noted that to date 10 activities on the task list of SMPAG had been agreed and that for five of those activities lead agencies had been identified to coordinate the work to be done.

26. The Subcommittee was informed that on 9 and 10 September 2014, the Action Team, in collaboration with NASA and SWF, had organized a workshop at Broomfield, Colorado, United States, on communication strategies for IAWN regarding NEO impact hazards. The main findings of the workshop included the following:

(a) The fundamental principles of risk communication are well defined and widely embraced;

(b) Cultivating and maintaining public trust, issuing notifications and warnings in a timely fashion, maintaining transparency in communications, understanding its various audiences and planning for a range of scenarios are important to effectively communicate NEO impact hazards and risks;

(c) IAWN needs to operate as a global, round-the-clock communications network in order to become a trusted and credible source of information;

(d) Employing, in the various IAWN institutions, a common language to communicate about asteroid impact hazards could help IAWN build its identity and credibility. Establishing mechanisms for routine communication could help increase awareness.

27. In view of the above findings, workshop participants formulated recommendations for IAWN, including the following:

(a) IAWN should establish a five-year plan with near- and mid-term actions for becoming the global trusted and credible NEO information, notification and warning network. This plan should consider the fundamental principles of risk communication;

(b) IAWN should sponsor briefings and workshops for news media reporters to improve NEO education in the mass media community.

28. The Subcommittee noted that the steering committee of IAWN held a meeting on 11 November 2014 in conjunction with the forty-sixth annual meeting of the Division of Planetary Sciences of the American Astronomical Society. The Steering Committee heard presentations from multiple NEO characterization projects on their current capabilities and activities. A final draft of the letter of intent for IAWN participation was presented and discussed. Further information can be found at www.minorplanetcenter.net/IAWN.

29. The Subcommittee noted that the Action Team had successfully carried out its work to establish IAWN and SMPAG and considered its assigned tasks completed. As IAWN and SMPAG would provide annual progress reports to the Subcommittee on the preparation of an international response to the near-Earth object impact threat, the Action Team had recommended that it should be dissolved.

30. The Subcommittee noted with appreciation the work of the Action Team on Near-Earth Objects and commended its achievements in coordinating international NEO hazard threat mitigation efforts, in particular through its work to establish IAWN and SMPAG. The Subcommittee also thanked the Chair of the Action Team, Sergio Camacho (Mexico), for his dedicated work.

31. The Subcommittee noted that the Action Team had recommended that in 2016 IAWN should hold a meeting as an open forum to discuss its workplan and other NEO-related activities. That meeting could be held on the margins of the fifty-third session of the Scientific and Technical Subcommittee in order to enable the participation of interested delegations.

32. The Subcommittee noted that the Action Team further recommended that IAWN and SMPAG should seek permanent observer status with the Committee.

33. The Subcommittee noted that the Action Team had identified that additional work would be required regarding the decision-making and implementation framework necessary for the development of the international community's capabilities for dealing with NEO threats. That work should also take account of the need for establishing an institutional and juridical framework for decisions regarding NEO defence operations and the related responsibilities.

34. The Subcommittee was also informed that on 5 and 6 February 2015, in collaboration with the Action Team on Near-Earth Objects, the first meeting of the SMPAG steering committee took place on the margins of the Subcommittee's session. Representatives of the following entities participated: Agenzia Spaziale Italiana, Centre national d'études spatiales of France, the German Aerospace Center (DLR), European Space Agency, IAWN, Japan Aerospace Exploration Agency, Israel Space Agency, NASA of the United States, Romanian Space Agency, Space and Upper Atmosphere Research Commission of Pakistan and UK Space Agency. In addition, representatives of the Action Team on Near-Earth Objects and the Office for Outer Space Affairs and Austria, Canada, India and Oman were present.

35. The Subcommittee was informed that the application of the Israel Space Agency for participation in SMPAG had been formally accepted at the meeting.

36. The Subcommittee was informed of the following information resulting from that meeting:

(a) The SMPAG steering committee agreed on a first official version of the terms of reference of SMPAG;

(b) Discussions were held on the criteria to be used for participation in the SMPAG steering committee and plenary meetings. As to the status of observers, it was agreed that they may be invited to meetings pending their prior application and acceptance by the chair of the meeting;

(c) Delegations agreed to formally invite the Office for Outer Space Affairs to attend SMPAG meetings as an observer;

(d) It was agreed that the SMPAG steering committee would meet twice per year;

(e) Discussions were held on the general structure and specific work activities of the SMPAG workplan, including the schedule;

(f) It was agreed that the SMPAG workplan should be a living document including completed, ongoing and planned activities.

[...]. Long-term sustainability of outer space activities

37. In accordance with General Assembly resolution 69/85, the Subcommittee considered agenda item 13, "Long-term sustainability of outer space activities", under the workplan contained in the report of the Committee on the Peaceful Uses of Outer Space at its fifty-second session[1] and as extended by the Committee at its fifty-seventh session.[2]

38. The representatives of Belarus, Brazil, Canada, China, France, Germany, Japan, Pakistan, the Republic of Korea, the Russian Federation, South Africa, Switzerland, the United States, and Venezuela (Bolivarian Republic of), as well as the representative of Chile, on behalf of the Group of Latin American and Caribbean States, made statements under agenda item 13. The observer for the Secure World Foundation also made a statement. During the general exchange of views, statements relating to the item were made by representatives of other member States.

39. The Subcommittee heard the following scientific and technical presentations:

(a) "The Commercial Space Transportation Advisory Committee (COMSTAC) model: leveraging private sector input for public-sector regulations", by the representative of the United States;

(b) "Asia-Pacific Regional Space Agency Forum in 2014 (APRSAF-21)", by the representative of Japan;

[1] A/64/20, para. 161.
[2] A/69/20, para. 199.

(c) "Asia-Pacific Regional Space Agency Forum", by the representative of Australia;

(d) "Risk to aircraft from space vehicle debris", by the observers for the International Association for the Advancement of Space Safety (IAASS);

(e) "Lessons learned from space failures", by the observers for IAASS.

40. The Subcommittee had before it the following:

(a) Note by the Secretariat containing an updated set of draft guidelines for the long-term sustainability of outer space activities (A/AC.105/C.1/L.340);

(b) Working paper by the Chair of the Working Group containing a draft report of the Working Group on the Long-term Sustainability of Outer Space Activities (A/AC.105/C.1/L.343);

(c) Conference room paper containing a proposal by the United States for an additional guideline (A/AC.105/C.1/2015/CRP.10);

(d) Conference room paper containing comments and proposed amendments by Germany on the updated set of draft guidelines (A/AC.105/C.1/2015/CRP.11);

(e) Conference room paper containing a proposal by Belgium for additional text to be inserted in the updated set of draft guidelines (A/AC.105/C.1/2015/CRP.12);

(f) Conference room paper submitted by Brazil containing comments and a proposal for an additional guideline (A/AC.105/C.1/2015/CRP.19);

(g) Conference room paper submitted by the Group of Latin American and Caribbean States containing comments and proposed amendments to the updated set of draft guidelines for the long-term sustainability of outer space activities (A/AC.105/C.1/2015/CRP.19/Rev.1);

(h) Conference room paper submitted by the Russian Federation containing an analysis and proposals for an additional guideline on the achievement of a uniform interpretation of the right of self-defence in conformity with the United Nations Charter as applied to outer space as a factor in maintaining outer space a safe and conflict-free environment and promoting the long-term sustainability of outer space activities (A/AC.105/C.1/2015/CRP.22);

(i) Conference room paper submitted by the Russian Federation containing an analysis and proposals for an additional guideline on considerations regarding the modalities of consolidating the understanding on issues pertaining to the enhancement of the practice in registering space objects in view of the necessity of ensuring the safety of space operations (A/AC.105/C.1/2015/CRP.23);

(j) Conference room paper submitted by the Russian Federation containing an analysis and proposals for six additional guidelines on additional considerations and proposals aimed at building up understanding of the priority aspects, comprehensive meaning and the functions of the concept and practices of ensuring the long-term sustainability of outer space activities (A/AC.105/C.1/2015/CRP.24);

(k) Conference room paper submitted by the Islamic Republic of Iran containing a proposed amendment to the proposal for the consolidation of the set of draft guidelines on the long-term sustainability of outer space activities (A/AC.105/C.1/2015/CRP.25);

(l) Conference room paper by France containing comments and proposed amendments to the updated set of draft guidelines (A/AC.105/C.1/2015/CRP.28);

(m) Conference room paper submitted by the Russian Federation containing a proposal on the review and consideration of the concept of a United Nations information platform serving common needs in collecting and sharing information on near-Earth space monitoring in the interests of safety of space operations, and its architectural and programmatic aspects (A/AC.105/C.1/2015/CRP.32);

(n) Conference room paper submitted by the Russian Federation containing comments on the identification of cross-links between the recommendations contained in the report of the Group of Governmental Experts on Transparency and Confidence-Building Measures in Outer Space Activities and the topic of developing guidelines on the long-term sustainability of outer space activities (A/AC.105/C.1/2015/CRP.33).

41. The Subcommittee also had before it a note by the Secretariat entitled "Recommendations of the group of governmental experts on transparency and confidence-building measures in outer space activities: views of States members of the Committee on the Peaceful Uses of Outer Space" (A/AC.105/1080).

42. In accordance with General Assembly resolution 69/85, the Working Group on the Long-term Sustainability of Outer Space Activities was reconvened under the chairmanship of Peter Martinez (South Africa).

43. The Subcommittee welcomed the progress made since its last session by the Working Group, in accordance with the terms of reference and methods of work of the Working Group.

44. The view was expressed that there was insufficient participation of developing countries in the work of the Working Group and its expert groups, and that their participation should be actively encouraged.

45. Some delegations stressed the importance of accomplishing the work of the Working Group within the time frame outlined in the revised workplan.

46. The view was expressed that haste to finalize the set of guidelines should not compromise careful and necessary consideration of the relevant topics.

47. Some delegations expressed the view that it was important to continue to consider common elements in the work in the Working Group and the recommendations contained in the report of the Group of Governmental Experts on Transparency and Confidence-Building Measures in Outer Space Activities (A/68/189).

48. The view was expressed that transparency and confidence-building measures in outer space activities were indispensable for maintaining the long-term sustainability of the peaceful uses of outer space.

49. The view was expressed that the guidelines on the long-term sustainability of outer space activities would form part of a broader context of measures aimed at fostering the sustainable use of outer space, and that they were intended to support and complement guidance available in existing treaties, principles, guidelines and recommendations.

50. The view was expressed that the United Nations was the only appropriate setting for the creation of guidelines and codes on the long-term sustainability of outer space affairs.

51. Some delegations expressed the view that the draft guidelines should take into consideration the needs of developing countries and not limit their access to outer space.

52. Some delegations expressed the view that the guidelines should take into account the principle of the non-placement of weapons in the space environment.

53. The view was expressed that the draft guidelines should be consistent with international law, including the five United Nations treaties on outer space, and that the overregulation of space activities would be undesirable.

54. The view was expressed that the guidelines must acknowledge that the preservation of outer space for the common good of all humankind should be mandatory and that the sustainability of outer space could not be subordinate to internal considerations of States.

55. Some delegations expressed the view that new guidelines should not create new costs or impose technical barriers for developing countries whose activities had little or no impact on the sustainability of space activities.

56. The view was expressed that the guidelines should include practical measures that can be implemented by space-faring nations.

57. The view was expressed that the guidelines should be forward-looking and encourage the use of new techniques and solutions to address challenges to the long-term sustainability of outer space affairs.

58. The view was expressed that the guidelines should focus on measures that already exist, and that technical solutions that have yet to reach maturity should be treated as topics for further discussions among experts.

59. Some delegations expressed the view that the ordering and grouping of the draft set of guidelines should be revised.

60. The view was expressed that the draft guidelines should be streamlined.

61. The view was expressed that it was important to reach a common understanding of which provisions of document A/AC.105/C.1/L.340 would constitute guidelines.

62. Some delegations expressed the view that the interrelationship between some of the draft guidelines and existing legal obligations required further clarification.

63. The view was expressed that it was necessary to continue to develop consensus on definitions and translations for the terms used in the guidelines.

64. The view was expressed that, in line with international law, the guidelines should use the term "non-governmental entities" rather than "private entities".

65. Some delegations expressed the view that additional guidelines should be added to the updated set of draft guidelines presented in A/AC.105/C.1/L.340.

66. The view was expressed that the guidelines should address the security of critical infrastructure for space activities.

67. The view was expressed that the draft guidelines should be supplemented with an additional guideline that would encourage States to commit, in their national legal frameworks, to conducting solely activities of a peaceful nature in the outer space environment and, in so doing, to bear in mind the report of the Group of Governmental Experts on Transparency and Confidence-Building Measures in Outer Space Activities.

68. The view was expressed that a centre for information on near-Earth space monitoring should be established under the auspices of the Office for Outer Space Affairs, as a universal tool for information exchange and for the collection and dissemination of information on objects and events in near-Earth space. The delegation expressing that view was also of the view that member States could initiate informal consultations that would enable them to take a decision in that regard at the forthcoming session of the Committee, in June 2015, and that the support of the Office for Outer Space Affairs was necessary.

69. The view was expressed that a database of space objects should be made available to all countries, for the safety, security and sustainability of space operations.

70. The view was expressed that space debris had been created through past space operations by countries with advanced space capabilities, and that those States should help new entrants in space activities to mitigate space debris by providing scientific, technological and financial support, in the interest of the long-term sustainability of outer space activities.

71. The view was expressed that legal issues on the long-term sustainability of outer space activities should be discussed in the Legal Subcommittee.

72. The view was expressed that a new agenda item on the legitimate use of force in space should be established.

73. The Subcommittee recalled the agreement of the Committee on the Peaceful uses of Outer Space at its fifty-seventh session that States members of the Committee should be invited to submit their views on the modalities of making practical use of the recommendations contained in the report of the Group of Governmental Experts, as they related to and/or could prove instrumental in ensuring the safety of space operations, and in the context of the ongoing work of the Scientific and Technical Subcommittee Working Group on the Long-term Sustainability of Outer Space Activities (A/69/20, para. 374). The Subcommittee welcomed the contributions contained in document A/AC.105/1080, and encouraged other member States to submit their contributions before the fifty-eighth session of the Committee.

74. The Subcommittee noted that the General Assembly, in paragraph 6 of its resolution 69/38, had decided to convene, within existing resources, a joint ad hoc meeting of the Disarmament and International Security Committee (First Committee) and the Special Political and Decolonization Committee (Fourth Committee) to address possible challenges to space security and sustainability, and to include in the provisional agenda of its seventieth session, under the item entitled "General and complete disarmament", a sub-item entitled "Joint ad hoc meeting of the First and Fourth Committees on possible challenges to space security and sustainability".

75. The Subcommittee requested the Secretariat to report to the Committee at its fifty-eighth session on the preparations for that joint ad hoc meeting and to inform the Committee on the planned format, agenda and procedures for the meeting, as well as on the expected outcome of the meeting and any budget implications.

76. At its [...] meeting, on [...] February, the Subcommittee endorsed the report of the Working Group on the Long-term Sustainability of Outer Space Activities, which is contained in annex [...] to the present report.

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II. United Nations Programme on Space Applications

1. In accordance with General Assembly resolution 69/85, the Subcommittee considered agenda item 4, "United Nations Programme on Space Applications".

2. At the 826th meeting, the Expert on Space Applications made a statement outlining the activities carried out and planned under the United Nations Programme on Space Applications.

3. The representatives of Canada, China, Colombia, Cuba, Germany, Japan, Republic of Korea, Saudi Arabia, the United States and Venezuela (Bolivarian Republic of) made statements under agenda item 4. A statement was also made under the item by the representative of Chile on behalf of the Group of Latin American and Caribbean States. During the general exchange of views, statements relating to the item were also made by observers for the Asia-Pacific Space Cooperation Organization (APSCO).

4. The Subcommittee heard the following scientific and technical presentations:

(a) "BRITE Constellation: two years in orbit", by representatives of Austria;

(b) "SpaceTech: a postgraduate master's degree programme in space systems and business engineering of the Graz University of Technology", by the representative of Austria;

(c) "Report of the new RCSSTEAP (China)", by the representative of China;

(d) "DropTES: a United Nations-Human Space Technology Initiative fellowship programme — report on the first cycle", by representatives of Germany;

(e) "Introduction of UNISEC-Global", by the representative of Japan;

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(f) "United Nations/Mexico Symposium on Basic Space Technology: making space technology accessible and affordable — a Mexican experience", by the representative of Mexico.

A. Activities of the United Nations Programme on Space Applications

5. The Subcommittee had before it the report of the Expert on Space Applications, outlining the mandate and orientation of the United Nations Programme on Space Applications (see A/AC.105/1085, paras. 2-11). The Subcommittee noted that the Programme for 2014 had been carried out satisfactorily and commended the work accomplished by the Office under the Programme.

6. The Subcommittee noted with appreciation the voluntary contributions, cash and in-kind, provided by various Member States and organizations for 2014 (see A/AC.105/1085, para. 53).

7. The Subcommittee noted that the priority areas of the Programme were environmental monitoring, natural resource management, satellite communications for tele-education and telemedicine applications, disaster risk reduction, the use of global navigation satellite systems, the Basic Space Science Initiative, space law, climate change and the Basic Space Technology Initiative.

8. The Subcommittee noted, that in 2015 the new thematic priority of monitoring and protecting biodiversity and ecosystems would be included in the Programme.

9. The Subcommittee noted that the Director of the Office for Outer Space Affairs and the Expert on Space Applications had informed it of the status of resources, including the impact of the reduction in the Office's human resources on the Programme. The Subcommittee noted that additional human resources were necessary to fully implement the range of activities to be conducted by the Programme and that without such an increase the Office would not be in a position to meet the increasing demands by Member States with respect to the sustainable development goals and the post-2015 development agenda.

10. Some delegations expressed concern that the Office's resources, in particular its human resources, were inadequate for the Office to continue implementing the full breadth of its mandate.

1. Year 2014

Meetings, seminars, symposiums, training courses and workshops

11. The Subcommittee had recommended the approval of the following programme of meetings, symposiums and workshops for 2014:

(a) United Nations Expert Meeting on the International Space Station Benefits for Health, held in Vienna on 19 and 20 February;

(b) United Nations/Morocco International Conference on the Use of Space Technology for Water Management, held in Rabat from 1 to 4 April;

(c) United Nations/Austria Symposium on Space Science and the United Nations, held in Graz, Austria, from 22 to 24 September;

(d) United Nations/International Astronautical Federation Workshop on Space Technology for Socioeconomic Benefits, held in Toronto, Canada, from 26 to 28 September;

(e) United Nations/Mexico Symposium on Basic Space Technology, held in Ensenada, Mexico, from 20 to 23 October;

(f) United Nations/China/Asia-Pacific Space Cooperation Organization Workshop on Space Law, held in Beijing from 17 to 20 November;

(g) United Nations/Abdus Salam International Centre for Theoretical Physics Workshop on the Use of Global Navigation Satellite Systems for Scientific Applications, held in Trieste, Italy, from 1 to 5 December.

Long-term fellowships for in-depth training

12. The Subcommittee expressed its appreciation to the Government and the Ministry of Industry of Italy, which, through the Politecnico di Torino and the Istituto Superiore Mario Boella and with the collaboration of the Istituto Elettrotecnico Nazionale Galileo Ferraris, had provided fellowships for the tenth master class on GNSS and related applications, which concluded in September and the eleventh class, which had begun in October 2014.

13. The Subcommittee expressed its appreciation to the Government of Japan for continuing the United Nations/Japan Long-Term Fellowship Programme on Nanosatellite Technologies in cooperation with the Kyushu Institute of Technology.

14. The Subcommittee expressed its appreciation to the Government of Germany, which, in collaboration with the Center of Applied Space Technology and Microgravity at Bremen University and the German Aerospace Center (DLR), had successfully conducted the first cycle of its drop tower experiment series.

2. Year 2015

Meetings, seminars, symposiums, training courses and workshops

15. The Subcommittee recommended the approval of the following programme of forums, meetings, symposiums and workshops for 2015:

(a) United Nations/Japan Workshop on Space Weather: Science and Data Products from International Space Weather Initiative Instruments, to be held in Fukuoka, Japan, from 2 to 6 March;

(b) United Nations/Russian Federation Workshop on the Applications of Global Navigation Satellite Systems, to be held in Krasnoyarsk, Russian Federation, from 18 to 22 May;

(c) United Nations/Austria Symposium on Integrated Space Technology Applications for Climate Change, to be held in Graz, Austria, from 14 to 17 September;

(d) United Nations/Islamic Republic of Iran Workshop on the Use of Space Technology for Dust Storm and Drought Monitoring in the Middle East Region, to be held in Tehran from 26 to 30 September;

(e) United Nations/South Africa Symposium on Basic Space Technology, to be held in Cape Town, South Africa, in September;

(f) United Nations/International Astronautical Federation Workshop on Space Technology for Socioeconomic Benefits, to be held in Jerusalem, Israel, from 9 to 11 October;

(g) United Nations/Costa Rica Workshop on Human Space Technology, to be held in San José from 9 to 13 November;

(h) United Nations/United Arab Emirates High-level Forum: Space as a Driver for Socioeconomic Sustainable Development, to be held in Dubai, United Arab Emirates, from 15 to 17 November;

(i) United Nations/Kenya Workshop on Space Technology and Applications for Wildlife Management and Protecting Biodiversity, to be held in Kenya in November;

(j) United Nations International Meeting on Global Navigation Satellite Systems, to be held in Vienna from 14 to 18 December.

B. Regional and interregional cooperation

16. The Subcommittee noted that the schedule of nine-month postgraduate courses for the period 2012-2014 offered by the regional centres for space science and technology education, affiliated to the United Nations, was annexed to the report of the Expert on Space Applications (A/AC.105/1085, annex III).

17. The Subcommittee noted the inauguration of the new regional centre for space science and technology education in Asia and the Pacific, located at Beihang University in Beijing. The Subcommittee also noted the commitment of the Government of China to supporting the work of the centre.

18. The Subcommittee recalled that the General Assembly, in its resolution 68/75, had emphasized the importance of regional and interregional cooperation in the field of space activities to assist States in the development of their space capabilities and contribute to the achievement of the goals of the United Nations Millennium Declaration, and had noted in that regard the importance of the equal participation of women in all fields of science and technology.

19. The Subcommittee noted that the twenty-first session of the Asia-Pacific Regional Space Agency Forum (APRSAF) had been held in Tokyo from 2 to 5 December 2014, on the theme "Leap to the next stage: delivering innovative ideas and solutions". The twenty-second session of APRSAF would be held in Bali, Indonesia, in 2015.

20. The Subcommittee also noted that the eighth meeting of the Council of APSCO had been held in Pakistan on 24 and 25 September 2014, at which it reviewed the progress made on APSCO projects.

21. The Subcommittee noted that the pro tempore secretariat of the Sixth Space Conference of the Americas was continuing the implementation of the Pachuca Declaration, adopted at the Sixth Conference, held in Pachuca, Mexico, from 15 to 19 November 2010.

22. The Subcommittee was informed of the in-cash contributions received from donors in past years, and member States were encouraged to further support the fulfilment of the objectives of the international community in supporting the development of capacity in space science and technology.

X. Use of nuclear power sources in outer space

23. In accordance with General Assembly resolution 69/85, the Subcommittee considered agenda item 12, "Use of nuclear power sources in outer space".

24. The representatives of China, the United States and Venezuela (Bolivarian Republic of), and the representative of Chile on behalf of the Group of Latin American and Caribbean States, made statements under agenda item 12. During the general exchange of views, statements relating to the item were also made by representatives of other member States.

25. The Subcommittee encouraged States and international intergovernmental organizations to begin or to continue implementing the Safety Framework for Nuclear Power Source Applications in Outer Space (A/AC.105/934).

26. The view was expressed that the Safety Framework would facilitate the conduct of missions involving nuclear power sources (NPS) on a bilateral and multilateral basis between States and international intergovernmental organizations. The delegation expressing that view was also of the view that the widespread implementation of the Safety Framework would provide assurance to the global community that NPS applications were being developed, launched and used in a safe manner.

27. The view was expressed that the Safety Framework, in its present form, was not adequate to meet the challenges posed by the use of NPS in outer space and that their proliferation in outer space, including in terrestrial orbits, should not be allowed, as the effects of NPS on humankind and the environment had not been assessed and there was no definite framework establishing responsibilities and introducing technical and legal tools that could effectively address critical situations that might arise because of improper practices.

28. The view was expressed that the Safety Framework provided a comprehensive and adequate foundation of guidance for member States and international intergovernmental space organizations to develop and operate their own space NPS applications in a safe manner. The delegation expressing that view was also of the view that adherence to the Safety Framework and the Principles Relevant to the Use of Nuclear Power Sources in Outer Space provided a high level of assurance that space NPS missions would be safe.

29. Some delegations expressed the view that Governments bore international responsibility for national activities involving the use of NPS in outer space conducted by governmental and non-governmental organizations and that the matter concerned all humanity.

30. The view was expressed that that there should be greater coordination and interaction between the Scientific and Technical Subcommittee and the Legal Subcommittee in order to develop binding legal instruments to define the

responsibility of States in the use of NPS in outer space and to undertake research on ways and means of optimizing or substituting for the use of nuclear energy in outer space activities.

31. The view was expressed that the use of NPS in outer space should be as limited as possible and that, while they were needed for some interplanetary missions, no justification existed for their use in terrestrial orbits, for which other sources of energy were available that were much safer and had been proved to be efficient.

32. Some delegations expressed the view that more consideration should be given to the use of NPS in terrestrial orbits in order to address the problem of potential collisions of NPS objects, as well as to their accidental re-entry into the Earth's atmosphere. Those delegations were of the view that more attention should be given to that matter through adequate strategies, long-term planning, regulations and the promotion of binding standards, as well as the Safety Framework for Nuclear Power Source Applications in Outer Space.

33. The view was expressed that States involved in the use of NPS in outer space should be encouraged to share, in technical presentations to the Subcommittee, their NPS safety experiences and best practices, as such sharing would substantiate national commitments to safety.

34. The view was expressed that the objectives of the Working Group's multi-year workplan should be in conformity with international law, the Charter of the United Nations and the United Nations treaties and principles on outer space, in particular the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies.

35. The view was expressed that all member States should be involved in the decision-making and the identification of issues and challenges associated with NPS applications and the Safety Framework and that that would ensure the success of the implementation of the Working Group's workplan. The delegation expressing that view was also of the view that all decisions of the Working Group should be strictly subject to the agreement of the Subcommittee.

36. Pursuant to General Assembly resolution 69/85, the Working Group on the Use of Nuclear Power Sources in Outer Space was reconvened under the chairmanship of Sam A. Harbison (United Kingdom). The Working Group held [...] meetings.

37. At its [...] meeting, on [...] February, the Subcommittee endorsed the report of the Working Group.

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III. Space technology for socioeconomic development in the context of the United Nations Conference on Sustainable Development and the post-2015 development agenda

1. In accordance with General Assembly resolution 69/85, the Subcommittee considered agenda item 5, "Space technology for socioeconomic development in the context of the United Nations Conference on Sustainable Development and the post-2015 development agenda".

2. The representatives of Colombia, Egypt, France, Germany and Japan made statements under agenda item 5. During the general exchange of views, statements relating to the item were made by representatives of other member States.

3. The Subcommittee heard the following scientific and technical presentations:

(a) "Blue Dot: – shaping the future, ISS mission of the German ESA astronaut Alexander Gerst", by the representative of Germany;

(b) "The Italian activities and contributions to ISS", by the representative of Italy;

(c) "Satellite information to contribute to global health", by the representative of Japan;

(d) "The Office for Outer Space Affairs and partners promoting Earth observation to meet global disaster risk reduction and sustainable development commitments", by the Office for Outer Space Affairs.

4. The Subcommittee had before it the following:

(a) Conference room paper entitled "Revised draft proposed workplan for a mechanism of cooperative deliberation for space and sustainable development:

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bridging the Committee on the Peaceful Uses of Outer Space and the Scientific and Technical Subcommittee" (A/AC.105/C.1/2015/CRP.15);

(b) Note by the Secretariat entitled "Rio+20 and beyond: towards the post-2015 development agenda" (A/AC.105/C.1/2015/CRP.26);

(c) Conference room paper entitled "First meeting of the expert group on space and global health held on 5 February 2015: report on the proposed mandate, workplan and initial considerations" (A/AC.105/C.1/2015/CRP.29);

(d) Note by the past, present and incoming chairs of the Committee on the Peaceful Uses of Outer Space entitled "2018 'UNISPACE+50' theme of the Scientific and Technical Subcommittee, the Legal Subcommittee and the Committee on the Peaceful Uses of Outer Space" (A/AC.105/C.1/2015/CRP.30).

5. The Subcommittee recalled that the General Assembly, in its resolution 69/85, reiterated the need to promote the benefits of space technology and its applications in the major United Nations conferences and summits for economic, social and cultural development and related fields, and recognized that the fundamental significance of space science and technology and their applications for global, regional, national and local sustainable development processes should be promoted in the formulation of policies and programmes of action and their implementation, including through efforts towards achieving the objectives of those conferences and summits, including implementing the Millennium Declaration and contributing to the post-2015 development agenda process.

6. The Subcommittee also recalled that, in that resolution, the Assembly encouraged Member States, to that end, to promote the inclusion in those conferences, summits and processes of the relevance of space science and technology applications and the use of space-derived geospatial data.

7. The Subcommittee noted the effective role of space science and technology and their applications and geospatial information in areas such as tele-health and tele-epidemiology, tele-education, disaster management, climate change, environmental protection, urban and rural development and Earth monitoring, as well as their contribution to economic, social and cultural development.

8. The Subcommittee noted with satisfaction that a panel discussion on space and sustainable development within the context of the post-2015 development agenda, organized by the Office for Outer Space Affairs, was held on 15 October 2014 during the plenary deliberations by the General Assembly Fourth Committee on international cooperation in the peaceful uses of outer space.

9. The Subcommittee noted with appreciation that the eleventh open informal session of UN-Space, entitled "Engaging space tools for development on Earth: contribution of space technology and applications to the post-2015 development agenda" was organized by the Office for Outer Space Affairs and held on 14 May 2014 in New York. The Subcommittee noted that a half-day high-level panel would be organized in conjunction with the joint United Nations/Germany Conference, to be held in Bonn from 26 to 28 May 2015; the title of the event would be "UN-Space–Bonn Conference high-level panel on space-based information for development".

10. Some delegations urged UN-Space to continue to examine ways in which space science and technology and their applications could contribute to the implementation of the Millennium Declaration and the post-2015 development agenda.

11. The view was expressed that the sustainable development goals should not be renegotiated with a view to including space technology, given the progress achieved by the Open Working Group of the General Assembly on Sustainable Development Goals. The delegation in question was of the view that space technology could be a fundamental tool for measuring, monitoring and evaluating the implementation of the post-2015 development agenda.

12. The view was expressed that the Subcommittee should continue its work to embed the use of space technology in the United Nations system.

13. The view was expressed that it was important to continue discussions on the use of space technology for socioeconomic development under the post-2015 development agenda, and that effective sharing of space-based data remained one of the important applications that could support achieving national objectives under the post-2015 development agenda.

14. The view was expressed that space activities should be considered an effective driver of economic growth and spin-off innovations for the benefit of humankind, and that progress in the peaceful uses of outer space would promote equitable and balanced development.

15. The view was expressed that the international community, especially developed countries, should step up their contributions towards bridging existing scientific and technological gaps by building capability in and sharing know-how with developing countries, and that without such support the goal of all-inclusive global development might not be achievable.

16. The view was further expressed that it was important to bridge the existing gaps in space technology capabilities and that the transfer of knowledge of space technology remained a key factor for building national capacity of Member States, which in turn could play a significant role in the attempt to make the space environment more sustainable.

17. The Working Group of the Whole was reconvened under the chairmanship of V. K. Dadhwal (India), in accordance with paragraph 8 of General Assembly resolution 69/85. At its [...] meeting, on [...] February, the Subcommittee endorsed the report of the Working Group of the Whole, which is contained in annex I to the present report.

V. Space debris

18. In accordance with General Assembly resolution 69/85, the Subcommittee considered agenda item 7, "Space debris".

19. The representatives of Brazil, Canada, China, Cuba, Egypt, Germany, India, Indonesia, Italy, Japan, Pakistan, the Russian Federation, Saudi Arabia, Switzerland, the United States and Venezuela (Bolivarian Republic of) made statements under agenda item 7. A statement was made under the item by the representative of Chile

on behalf of the Group of Latin American and Caribbean States. During the general exchange of views, statements relating to the item were also made by representatives of other member States.

20. The Subcommittee heard the following scientific and technical presentations:

(a) "United States space debris environment, operations and modelling updates", by the representative of the United States;

(b) "The Inter-Agency Space Debris Coordination Committee (IADC) — an overview of the IADC annual activities", by the representative of the United States;

(c) "Overview of the 2014 space debris activities in France", by the representative of France;

(d) "KIAM[1] space debris data centre for processing and analysing information on space debris obtained by the ISON network", by the representative of the Russian Federation;

(e) "The RemoveDEBRIS mission", by the representative of the United Kingdom;

(f) "Space debris mitigation activities at ESA in 2014", by the observer for ESA.

21. The Subcommittee had before it the following:

(a) Information on national research on space debris, the safety of space objects with nuclear power sources on board and problems relating to the collision of such objects with space debris, containing replies received from Member States and international organizations on the issue (A/AC.105/C.1/109, Add.1, A/AC.105/C.1/2015/CRP.7, A/AC.105/C.1/2015/CRP.8 and A/AC.105/C.1/2015/CRP.16);

(b) Conference room paper entitled "Compendium of space debris mitigation standards adopted by States and international organizations" (A/AC.105/C.1/2015/CRP.9).

22. The Subcommittee expressed concern at the increasing amount of space debris and encouraged those States which had not yet done so to consider voluntary implementation of the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space.

23. The Subcommittee agreed that States, in particular spacefaring nations, should pay greater attention to the problem of collisions of space objects, including those with nuclear power sources on board, with space debris and to other aspects of space debris, including its re-entry into the atmosphere.

24. The Subcommittee noted with satisfaction that some States were implementing space debris mitigation measures consistent with the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space and/or the Inter-Agency Space Debris Coordination Committee (IADC) Space Debris Mitigation Guidelines, and that other States had developed their own space debris mitigation standards based on those guidelines.

[1] KIAM = Keldysh Institute of Applied Mathematics.

25. The Subcommittee noted that other States were using the IADC Guidelines and the European Code of Conduct for Space Debris Mitigation as reference points in their regulatory frameworks for national space activities. The Subcommittee also noted that other States had cooperated, in the framework of the ESA space situational awareness programme, to address the issue of space debris.

26. The Subcommittee noted with appreciation that States had adopted a number of approaches and concrete actions to mitigate space debris, including the improvement of the design of launch vehicles and spacecraft, the reorbiting of satellites, passivation, end-of-life operations and the development of specific software and models for space debris mitigation.

27. The Subcommittee noted that research was being conducted in the areas of technology for space debris observation and continuous monitoring, space debris re-entry prediction, collision avoidance and modelling of collision probability, in-orbit robotic servicing of satellites, and technologies to protect space systems from space debris and to limit the creation of additional space debris.

28. Some delegations expressed the view that outcomes of the work of working groups of the Subcommittee, such as the Safety Framework for Nuclear Power Source Applications in Outer Space and the Space Debris Mitigation Guidelines of the Committee, should be officially presented to the Legal Subcommittee for examination.

29. The view was expressed that it was necessary to continue improving the Space Debris Mitigation Guidelines of the Committee and that the Scientific and Technical Subcommittee and the Legal Subcommittee should cooperate with the aim of developing legally binding rules relating to space debris, including debris derived from space platforms with nuclear power sources on board.

30. Some delegations expressed the view that space debris issues could be effectively addressed through the voluntary implementation of space debris mitigation measures by means of national mechanisms.

31. Some delegations expressed the view that countries with highly advanced space programmes should assume their responsibilities in the area of space debris to ensure that the mitigation and removal costs were not passed on to countries with emerging space programmes and that a solution should be sought, in particular for space debris of large dimensions that could potentially generate multiple fragments, which would be costly to remove.

32. Some delegations expressed the view that information on actions to reduce the creation of space debris should be made available to the Committee, in particular by those States which were largely responsible for creating space debris and by the States that had the capacity to take action with regard to space debris mitigation.

33. The view was expressed that reporting the status of implementation of the Space Debris Mitigation Guidelines by all spacefaring nations would improve transparency and confidence-building among Member States.

34. Some delegations expressed the view that developing countries should benefit from technical assistance provided by spacefaring nations for monitoring, mitigation and removal of space debris.

35. Some delegations expressed the view that the exchange of knowledge, data and analysis methods among States was essential for meaningful mitigation strategies and remediation measures.

36. The view was expressed that since space debris had been created by the past operations of spacefaring countries, those countries should assist countries with emerging space programmes in the implementation of space debris mitigation measures through the provision of conjunction assessment risk analysis systems and situational awareness systems for the live monitoring of space objects, providing scientific and technological support, including the transfer of relevant technology, without imposing undue costs.

37. The view was expressed that a mechanism should be developed to assist emerging spacefaring nations that did not have the necessary financial and technological resources to comply with the set of debris mitigation guidelines.

38. Some delegations expressed the view that all relevant information related to the re-entry of space debris into the Earth's atmosphere should be reported diligently and expeditiously to countries that might be affected.

39. Some delegations expressed the view that, during the removal of space debris, no unilateral action should be taken by any State with respect to a space object of another State unless a consultation and agreement with regard to that action had been reached with the State of registry of the space object in question.

40. The view was expressed that an advisory group and initiative, similar to those adopted in the Space Mission Planning Advisory Group and the Action Team on Near-Earth Objects (Action Team 14), should be set up to address the issue of remediation solutions with respect to space debris.

41. The view was expressed that a political, legal and institutional framework to implement measures related to in-orbit remediation of the space environment needed to be developed and accepted.

42. The view was expressed that coordinated efforts were required to deal with technological and financial aspects of debris removal.

43. The view was expressed that research should focus on eliminating tiny pieces of space debris that were difficult to track or identify, and that a legal framework should be developed under the United Nations auspices to support activities for the clean-up of the space environment.

44. The view was expressed that special attention should be paid to mitigation measures, such as the removal of massive non-functional spacecraft and launch vehicle stages.

45. The Subcommittee noted with satisfaction that the compendium of standards adopted by States and international organizations to mitigate space debris, initiated by Canada, the Czech Republic and Germany, was made available on the website of the Office for Outer Space Affairs, and encouraged Member States to provide their contributions or updates to the compendium.

46. The Subcommittee took note of paragraph 12 of General Assembly resolution 69/85, and agreed that Member States and international organizations with permanent observer status with the Committee should continue to be invited to

provide reports on research on space debris, the safety of space objects with nuclear power sources on board, problems relating to the collision of such space objects with space debris and ways in which debris mitigation guidelines were being implemented.